

GEOENVI Webinar 27 April 2020

“How to simplify Life Cycle Assessment in deep geothermal projects with the novel GEOENVI tool”

General introduction to Bagnore power plant

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○ Plant description

- Bagnore field is located in the Monte Amiata area, Tuscany, Italy.
- Bagnore field is characterized by 2 connected power plants, Bagnore 3 and Bagnore 4, realized and operated by Enel Green Power.
- Bagnore 3 is a flash plant with 20 MWe of installed power with an additional 1 MWe Organic Rankine Cycle (ORC) unit.
- Bagnore 4 is powered by two 20 MWe groups.
- In addition to electric generation, also heat delivery is achieved exploiting residual heat after turbine expansion. The total heat delivered to the final users is about 32 GWh/y.
- The power plant is equipped with oversized Mercury and Hydrogen Sulphide abatement system (AMIS) system to significantly reduce the emissions of Hg and H₂S from the site.



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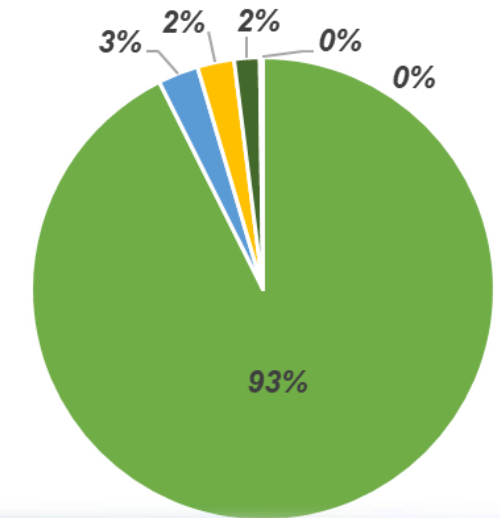
Operational data of Bagnore 3 & 4

Geothermal source type	Hydrothermal
Energy generation technology	Flash
Dissolved gasses (NCG)	6-9 % in mass
Final energy use	Electricity production

Parameter	Unit	Value
Installed power		
Electric	MW _e	61
Thermal	MW _{th}	21.1
Heating SUPPLY RETURN temperature	°C	100 60
Net energy output (annual)		
Electric	GWh _e /y	544
Thermal	GWh _t /y	32
Predicted lifetime	Years	30
Production and injection wells	Number	8 production / 6 injection
Total length drilled	Meters	31823
Pipelines length	Meters	10400

NCG composition (% volume)

■ CO₂ ■ NH₃ ■ CH₄ ■ H₂S ■ Hg ■ CO



Thank you.

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